

U.S. Patent Application No.: 10/706,482

Art Unit: 1771

Page 2

**Rejection of Claims under 35 U.S.C. § 103**

The Examiner has rejected claims 1-56 under 35 U.S.C. § 103(a) as being obvious over Frank et al. (U.S. Patent No. 5,789,075) in view of Andersen et al. (U.S. Patent No. 5,830,548).

In paragraph 2 of the Office Action, the Examiner states that Frank et al. teaches a composite material suitable as a thermal insulating material comprising an SiO<sub>2</sub> aerogel mat laminated to a polymeric film. The Examiner further states that Frank et al. teaches the aerogel mat having porosity above 60%, density below 0.6 g/cc, and thermal conductivity of 20 mW/mk. The Examiner also states that Frank et al. discloses the aerogel having hydrophobic surface groups and containing IR opacifiers and fibers, the aerogel mat having been surface modified via silylating, polycondensed, and dried.

While the Examiner states that Frank does not specifically disclose the polymeric film being one from the Markush group, Andersen et al. teaches a composite material for use in thermal insulation comprising an aerogel insulating material sandwiched between two layers of polyethylene terephthalate. The Examiner therefore concludes that it would have been obvious to one having ordinary skill in the art at the time the invention was to use polyethylene terephthalate film layer as a polymeric film because such is the intended use of the material and Andersen et al. provides the necessary details to practice the invention of Frank et al.

Applicants respectfully disagree. Regarding claims 1-8, 21, 22-33, and 55-56, claims 1, 21, 22, and 55 each recite a film comprising a material selected from a specified Markush group that is coated on at least one side with an aerogel coating that has been surface modified via silylation. In claims 1 and 21, the aerogel coating is formed by a specified process.

U.S. Patent Application No.: 10/706,482

Art Unit: 1771

Page 3

By comparison, Frank et al. describes a composite comprising an aerogel having fibers dispersed therein (see the Abstract). Frank et al. also shows that this composite may be laminated with polymeric films (see column 7, lines 17-19). However, there is no disclosure in Frank et al. of a material coated by an aerogel coating, as recited in present claims 1, 21, 22, and 55, and, in particular, no disclosure of one formed by the process recited in present claims 1 and 22. Furthermore, as noted by the Examiner, none of the materials in the Markush group recited in the present claims are described in Frank et al.

In order to cure these deficiencies, the Examiner relies on Andersen et al. However, this reference specifically relates to laminate structures comprising an inorganically filled sheet or layer. By "laminate" is meant sheets having at least two layers with at least one of the layers being an inorganically filled layer or sheet (see column 9, lines 9-16). The object of the invention is to provide inorganically filled sheets which are in turn incorporated into composite laminate structures (see column 16, line 62 to column 17, line 45), and a variety of methods are described for forming the inorganically filled sheets (see column 14, line 1 to column 14, line 7) as well as for incorporating this sheet into a laminate (see column 14, line 57 to column 16, line 23).

Thus, it is clear that Andersen et al. does not relate to a coating on a material but rather to sheets of material incorporated into laminates. Furthermore, while the inorganically filled sheet or layer may include light weight aggregates, including aerogels and xerogels (see column 11, lines 42-44), there is no teaching or suggestion of an aerogel coating and, in particular, one formed using the process recited in present claims 1 and 22.

Therefore, Applicants believe that Andersen et al. cannot cure the deficiencies of Frank et al. because, like Frank et al, there is no disclosure, teaching, or suggestion of a material coated by an aerogel coating, as recited in claims 1, 21, 22, and 55, and, in particular, no disclosure, teaching, or suggestion of such a coating formed by the process recited in present claims 1 and 22.

U.S. Patent Application No.: 10/706,482

Art Unit: 1771

Page 4

Applicants therefore believe that claims 1, 21, 22, and 55 are not obvious over Frank et al. in view of Andersen et al. Furthermore, claims 2-8, which depend directly from claim 1, claims 23-33, which depend either directly or indirectly from claim 22, and claim 56, which depends directly from claim 55, recite further embodiments of the present invention and, for at least the reasons discussed above, are also not obvious over this combination of references.

Regarding claims 9, 10 and 34, these claims recite a process for manufacturing a coated film as defined in claim 1 (for claims 9 and 10) or in claim 22 (for claim 34). Since Applicants believe the coated film of claims 1 and 22 are patentable over Frank et al. in view of Andersen et al., Applicants further believe the process for manufacturing such a coated film is also patentable over these references. There is no disclosure, teaching, or suggestion of the coated film of the present invention nor a process for producing them in Frank et al. or Andersen et al., either alone or in combination.

Regarding claims 11-18 and 35-47, claims 11 and 35 recite a film construct comprising a first and a second film, each film separately comprising a material selected from a specified Markush group wherein a coat that contains an aerogel powder and/or an aerogel granulate that has been surface modified by silylation is arranged between said first and second film to which said coat is fused. Since Applicants believe that Frank et al. and Andersen et al., either alone or in combination, do not disclose, teach, or suggest an aerogel coating, Applicants therefore believe a film construct comprising a film coated by such an aerogel coating is patentable over these references.

Applicants therefore believe that claims 11 and 35 are not obvious over Frank et al. in view of Andersen et al. Furthermore, claims 12-18, which depend directly from claim 11, and claims 36-47, which depend either directly or indirectly from claim 35, recite further embodiments of the present invention and, for at least the reasons discussed above, are also not obvious over this combination of references.

U.S. Patent Application No.: 10/706,482

Art Unit: 1771

Page 5

Regarding claims 19 and 48-50, claims 19 and 48 each recited a process for manufacturing the film construct as defined in claim 11 (for claim 19) or in claim 35 (for claim 48). Since Applicants believe the film construct of claims 19 and 35 are patentable over Frank et al. in view of Andersen et al., Applicants further believe the process for manufacturing such a film construct is also patentable over these references. There is no disclosure, teaching, or suggestion of the film construct comprising the coated film of the present invention nor a process for producing them in Frank et al. or Andersen et al., either alone or in combination.

Applicants therefore believe that claims 19 and 48 are not obvious over Frank et al. in view of Andersen et al. Furthermore, claims 49-50, which depend either directly or indirectly from claim 48, recite further embodiments of the present invention and, for at least the reasons discussed above, are also not obvious over this combination of references.

Regarding claims 20 and 51-54, claims 20, 51, and 53 recite a thermal insulation material which comprises a coated film as defined in claim 1 (for claim 20) or in claim 22 (for claim 51) or a film construct as defined in claim 35 (for claim 53). Since Applicants believe the coated film of claims 1 and 22 as well as the film construct of claim 35 are patentable over Frank et al. in view of Andersen et al., Applicants further believe that insulation materials comprising such a coated film or film construct is also patentable over these references. There is no disclosure, teaching, or suggestion of the coated film or film construct of the present invention nor of an insulation material comprising such a coated film or film construct in Frank et al. or Andersen et al., either alone or in combination.

Applicants therefore believe that claims 20, 51, and 53 are not obvious over Frank et al. in view of Andersen et al. Furthermore, claim 52, which depends directly from claim 51, and claim 54, which depends directly from claim 53, recite further embodiments of the present invention and, for at least the reasons discussed above, are also not obvious over this combination of references.

Therefore, Applicants believe that claims 1-56 are patentable and not obvious over Frank et al. in view of Andersen et al. and respectfully request that this rejection be withdrawn.

